Docket: 80063 Appl. No.: 10/722,870

Prelim. Amdt. dated March 17, 2004

**PATENT** 

## **Amendments to the Specification**

Please replace paragraph [0004] with the following amended paragraph:

PVC compositions are, by far, the largest segment of the calendered film [0004] and sheet business. Small amounts of other thermoplastic polymers such as, for example, thermoplastic rubbers, certain polyurethanes, talc-filled polypropylene, acrylonitrile/butadiene/styrene terpolymers (ABS resins), and chlorinated polyethylene, are sometimes processed by calendering methods. By contrast, polyester polymers such as, for example, poly(ethylene terephthalate), abbreviated herein as "PET", or poly(1,4butylene terephthalate), abbreviated herein as "PBT", are difficult to calender successfully. For example, PET polymers with inherent viscosity values of about 0.6 deciliters/gram (abbreviated herein as "dL/g"), typically have insufficient melt strength to perform properly on the calendering rolls. Melt strength is defined as the ability of a polymer to support its weight in the molten state. In calendering, melt strength is related to the ability to remove the film from the roll process without deformation. For example, when calendered, a polymer with low melt strength will quickly sag and hit the floor; whereas, a polymer with high melt strength will maintain its shape for a much longer amount of time and can be further processed. Melt strength is thus important to minimize the amount of "drawdown" and gravity-induced sagging the polymer experiences during the calendering process. Drawdown is defined in calendering as the amount of thickness reduction between the calendering rolls and the take-up system and is expressed as the ratio of the nominal thickness or width dimension as the film exits the calendering rolls with the same dimension at the take up roles. Also, PET and other polyester polymers are prone to crystallize at typical processing temperatures of 160°C to 180°C, resulting a non-homogeneous mass which also causes high forces on the calender bearings. Increasing processing temperatures will reduce melt viscosity and improve processability. Higher temperatures, however, can cause degradation of the polyester such as, for example, by thermal degradation, hydrolysis of polymer by exposure to atmospheric moisture, and the formation of color bodies. Typical PET

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polymers also have a tendency to stick to the calendering rolls at higher processing temperatures. The calendering of various polyester compositions and several approaches to these problems has been described, for example, in U.S. Patent No.'s 5,998,005; 6,068,910; 6,551,688; U.S. Patent Application Serial No. 10/086,905; Japan Patent Application No.'s 8-283547; 2001-274010; 7-278418; 2000-243055; 10-363-908; 2000-310710; 2001-331315; 11-158358; and World Patent Application No. 02/28967. Although some these difficulties can be avoided by the careful selection of polymer properties, additives, and processing conditions, calendering of polyesters at high rates of production is difficult.